

What is claimed is:

1                   1. A system for identifying a signal source  
2                   supplying a program signal to a monitored receiver, wherein  
3                   the monitored receiver is located in a household, and where-  
4                   in the system comprises:

5                   program signature extracting means for extracting  
6                   a reference program signature representative of an output of  
7                   the monitored receiver and for extracting a source program  
8                   signature representative of the program signal supplied by  
9                   the signal source, wherein the program signature extracting  
10                  means is located in the household; and,

11                  signal source identifying means for identifying  
12                  the signal source as a source of the program signal in  
13                  response to the reference program signature and the source  
14                  program signature.

2                   2. The system of claim 1 wherein the signal  
3                   source identifying means comprises signature correlating  
4                   means for correlating the reference program signature and  
5                   the source program signature.

1           3.    The system of claim 2 wherein the signal  
2    source identifying means comprises program identifying means  
3    for identifying a program associated with the program signal  
4    if the reference program signature and the source program  
5    signature match.

1           4.    The system of claim 3 further comprising code  
2    reading means operably coupled to the signal source for  
3    reading an ancillary code from the program signal supplied  
4    by the signal source.

1           5.    The system of claim 4 wherein the program  
2    identifying means identifies the program from the ancillary  
3    code read from the program signal.

1           6.    The system of claim 5 wherein the ancillary  
2    code is a video code.

1           7.    The system of claim 5 wherein the ancillary  
2    code is an audio code.

1           8.    The system of claim 3 wherein the program  
2    identifying means identifies the program from a signature  
3    extracted from the program signal.

1           9.    The system of claim 2 wherein the signature  
2    correlating means is located in the household, and wherein  
3    the signal source identifying means includes means for  
4    transmitting a signal source indicating signal to a central  
5    facility.

1           10.   The system of claim 1 wherein at least one of  
2    the reference program signature and the source program  
3    signature is a video program signature.

1           11.   The system of claim 1 wherein at least one of  
2    the reference program signature and the source program  
3    signature is an audio program signature.

1           12. The system of claim 1 wherein the signal  
2 source is a scanning tuner, wherein the program signature  
3 extracting means extracts a reference program signature from  
4 an output of the monitored receiver and a source program  
5 signature from an output of the scanning tuner, and wherein  
6 the scanning tuner is located in the household.

1           13. The system of claim 1 wherein the signal  
2 source is a VCR, wherein the program signature extracting  
3 means extracts a reference program signature from an output  
4 of the monitored receiver and a source program signature  
5 from an output of the VCR, and wherein the VCR is located in  
6 the household.

1           14. The system of claim 1 wherein the signal  
2 source is a game, wherein the program signature extracting  
3 means extracts a reference program signature from an output  
4 of the monitored receiver and a source program signature  
5 from an output of the game, and wherein the game is located  
6 in the household.

1           15. A system for identifying which of first and  
2 second signal sources is supplying a program signal to a  
3 monitored receiver, wherein the first and second signal  
4 sources and the monitored receiver are located in a house-  
5 hold, and wherein the system comprises:

6           program signature extracting means for extracting  
7 a reference program signature representative of an output of  
8 the monitored receiver and for extracting first and second  
9 source program signatures representative of an output of the  
10 first and second signal sources, wherein the program signa-  
11 ture extracting means is located in the household; and,

12           signal source identifying means for identifying  
13 which of the first and second signal sources is a source of  
14 the program signal in response to the reference program  
15 signature and the first and second source program signa-  
16 tures.

          16. The system of claim 15 wherein the signal  
2 source identifying means comprises signature correlating  
3 means for correlating the reference program signature with  
4 the first and second source program signatures.

1           17. The system of claim 16 wherein the signal  
2 source identifying means comprises program identifying means  
3 for identifying a program source associated with the program  
4 signal if the reference program signature and one of the  
5 first and second source program signatures match.

1           18. The system of claim 17 further comprising  
2 code reading means operably coupled to the first signal  
3 source for reading an ancillary code from the program signal  
4 supplied by the first signal source.

1           19. The system of claim 18 wherein the program  
2 identifying means identifies the program from the ancillary  
3 code read from the program signal.

1           20. The system of claim 19 wherein the ancillary  
2 code is a video code.

1           21. The system of claim 19 wherein the ancillary  
2 code is an audio code.

1           22. The system of claim 17 wherein the program  
2 identifying means identifies the program from a signature  
3 extracted from the program signal.

1           23. The system of claim 16 wherein the signature  
2 correlating means is located in the household, and wherein  
3 the signal source identifying means includes means for  
4 transmitting a signal source indicating signal to a central  
5 facility.

1           24. The system of claim 15 wherein at least one  
2 of the reference program signature and the first and second  
3 source program signatures is a video program signature.

1           25. The system of claim 15 wherein at least one  
2 of the reference program signature and the first and second  
3 source program signatures is an audio program signature.

1           26. The system of claim 15 wherein one of the  
2 first and second signal sources is a scanning tuner, wherein  
3 the program signature extracting means extracts a reference  
4 program signature from an output of the monitored receiver  
5 and a first source program signature from an output of the  
6 scanning tuner, and wherein the scanning tuner is located in  
7 the household.

1           27. The system of claim 15 wherein one of the  
2 first and second signal sources is a VCR, wherein the pro-  
3 gram signature extracting means extracts a reference program  
4 signature from an output of the monitored receiver and a  
5 source program signature from an output of the VCR, and  
6 wherein the VCR is located in the household.

1           28. The system of claim 15 wherein one of the  
2 first and second signal sources is a game, wherein the pro-  
3 gram signature extracting means extracts a reference program  
4 signature from an output of the monitored receiver and a  
5 source program signature from an output of the game, and  
6 wherein the game is located in the household.



1           29. A system for identifying a program tuned by a  
2 monitored receiver, wherein the monitored receiver is locat-  
3 ed in a household, and wherein the system comprises:

4           tuning means, separate from a tuner of the moni-  
5 tored receiver, for tuning to programs tunable by the moni-  
6 tored receiver, wherein the tuning means is located in a  
7 household;

8           program signature extracting means operably cou-  
9 pled to the monitored receiver and to the tuning means for  
10 extracting a first program signature from an output of the  
11 monitored receiver and for extracting a second program  
12 signature from an output of the tuning means;

13           signature correlating means for correlating the  
14 first and second program signatures; and,

15           code reading means operably coupled to the tuning  
16 means for reading an ancillary code from the output of the  
17 tuning means if the signature correlating means detects a  
match between the first and second program signatures.

1           30. The system of claim 29 wherein the ancillary  
2 code is a video code.

1           31. The system of claim 29 wherein the ancillary  
2 code is an audio code.

1           32. The system of claim 29 wherein the first and  
2 the second program signatures are video program signatures.

1           33. The system of claim 29 wherein the first and  
2 the second program signatures are audio program signatures.

1           34. The system of claim 29 wherein the tuning  
2 means comprises a scanning tuner.

1           35. A system for determining an operating mode of  
2 a recording/playing device, wherein the recording/playing  
3 device generates a recording indicating signal during re-  
4 cording and operates in conjunction with a receiver, and  
5 wherein the system comprises:

6           tuning means, separate from a tuner of the receiv-  
7 er, for tuning to a program signal;

8           first signal acquiring means for acquiring a first  
9 signal from an output of the recording/playing device;

9                   second signal acquiring means for acquiring a  
11 second signal from an output of the tuning means;  
12                   third signal acquiring means for acquiring a third  
13 signal from an output of the receiver;  
14                   fourth signal acquiring means for acquiring the  
15 recording indicating signal; and,  
16                   determining means coupled to the first, second,  
17 third, and fourth signal acquiring means for determining an  
18 operating mode of the recording/playing device dependent  
19 upon the first, second, and third signals and the recording  
20 indicating signal.

1                   36. The system of claim 35 wherein the determin-  
2 ing means comprises means for determining that the record-  
3 ing/playing device is in a recording operating mode and that  
4 a program being recorded is in control of the receiver if  
5 the recording indicating signal is present, if the first and  
6 second signals match, and if the first and third signals  
7 match.

1           37. The system of claim 35 wherein the determin-  
2 ing means comprises means for determining that the record-  
3 ing/playing device is in a recording operating mode and that  
4 a program being recorded is not in control of the receiver  
5 if the recording indicating signal is present, if the first  
6 and second signals match, and if the first and third signals  
7 do not match.

1           38. The system of claim 35 wherein the determin-  
2 ing means comprises means for determining that the record-  
3 ing/playing device is in a playing operating mode if the re-  
4 cording indicating signal is not present, if the first and  
5 second signals do not match, and if the first and third sig-  
6 nals match.

1           39. The system of claim 35 wherein the determin-  
2 ing means comprises means for determining that the receiver  
3 is being tuned with the recording/playing device or that the  
4 recording/playing device is in a fast forward state or that  
5 the recording/playing device is in a rewind state if the re-  
6 cording indicating signal is not present, if the first and

7 second signals match, and if the first and third signals  
8 match.

1 40. The system of claim 35 wherein the determin-  
2 ing means comprises means for determining that the record-  
3 ing/playing device is in an off operating mode or that the  
4 recording/playing device is in a receiver operating mode if  
5 the recording indicating signal is not present, if the first  
6 and second signals do not match, and if the first and third  
7 signals do not match.

1 41. The system of claim 35 wherein the first,  
2 second, and third signals comprise signatures.

1 42. The system of claim 47 wherein the signatures  
2 are video signatures.

2 43. The system of claim 47 wherein the signatures  
are audio signatures.

1           44. A system for measuring the use of a video  
2 recorder operably connected to a television receiver, the  
3 television receiver receiving a plurality of corresponding  
4 transmitted television signals, the system comprising:

5           source tuning means for tuning to a source program  
6 signal corresponding to a transmitted television signal;

7           television receiver signal acquiring means for  
8 acquiring a signal displayed on the television receiver;

9           first comparing means for comparing a signal from  
10 the video recorder to the source program signal; and,

11           second comparing means for comparing the signal  
12 from the video recorder to the signal acquired by the tele-  
13 vision receiver signal acquiring means.

1           45. The system of claim 44 further comprising  
2 determining means for determining that the video recorder is  
3 in a recording operating mode and that a program being  
4 recorded is in control of the television receiver if the  
5 signal from the video recorder and the source program signal  
6 match and if the signal from the video recorder and the  
7 signal acquired by the television receiver signal acquiring  
8 means match.

1  
2  
3  
4  
5  
6  
7  
8  
46. The system of claim 44 further comprising  
determining means for determining that the video recorder is  
in a recording operating mode and that a program being  
recorded is not in control of the television receiver if the  
signal from the video recorder and the source program signal  
match and if the signal from the video recorder and the  
signal acquired by the television receiver signal acquiring  
means do not match.

1  
2  
3  
4  
5  
6  
47. The system of claim 44 further comprising  
determining means for determining that the video recorder is  
in a play operating mode if the signal from the video re-  
corder and the source program signal do not match and if the  
signal from the video recorder and the signal acquired by  
the television receiver signal acquiring means match.

1  
2  
3  
48. The system of claim 44 wherein the television  
receiver signal acquiring means is a non-intrusive televi-  
sion receiver signal acquiring means.

49. A method of determining the source of a signal selected for use by a user at a monitored receiver in a household, the method comprising the steps of:

(a) selecting, by means of a source receiver, a source signal corresponding to a channel;

(b) acquiring, by use of a non-intrusive sensor disposed proximate to the monitored receiver, a representation of the signal selected by the user;

(c) comparing the representation of the signal selected by the user to the source signal in order to determine a difference between the representation and the source signal;

(d) if the difference is less than a predetermined amount, identifying the representation as the source signal;

(e) if the difference is not less than a predetermined amount, controlling the source receiver to receive a source signal corresponding to another channel and repeating steps (c) and (d).



50. The method of claim 49 wherein step (c)  
comprises the steps of:  
extracting a first program signature from the  
source signal;  
extracting a second program signature from the  
representation of the signal selected by the user; and,  
comparing the first and second program signatures.

51. The method of claim 49 comprising the further  
step of reading an ancillary code from the source signal.

52. The method of claim 49 wherein step (c)  
comprises the steps of:  
extracting a first video program signature from  
the source signal;  
extracting a second video program signature from  
the representation of the signal selected by the user; and,  
comparing the first and second video program  
signatures.

53. The method of claim 49 wherein step (c) comprises the steps of:

extracting a first audio program signature from the source signal;

extracting a second audio program signature from the representation of the signal selected by the user; and,

comparing the first and second audio program signatures.

54. A method of reading an ancillary code operably associated with a user selected program signal transmitted from one of a plurality of program channels to which a household receiver in a household is tuned, the method comprising the steps of:

(a) acquiring the user selected program signal from the household receiver;

(b) acquiring a source program signal from a predetermined one of the plurality of program channels;

(c) comparing the source program signal to the user selected program signal and, if the source program signal and the user selected program signal differ by less

13 than a predetermined amount, reading the ancillary code from  
14 the source program signal.

1 55. The method of claim 54 further comprising the  
2 steps of:

3 acquiring a first sync signal related to the user  
4 selected program signal;

5 acquiring a second sync signal related to the  
6 source program signal; and,

7 comparing the first and second sync signals.

1 56. The method of claim 54 wherein the step (c)  
2 comprises the steps of:

3 extracting a first program signature from the user  
4 selected program;

5 extracting a second program signature from the  
6 source program signal; and,

7 comparing the first and the second program signa-  
8 tures.

1           57. The method of claim 54 further comprising  
2 steps (d) and (e), carried out only if the source program  
3 signal and the user selected program signal differ by more  
4 than the predetermined amount, of:

5           (d) receiving a source signal from another prede-  
6 termined one of the plurality of channels; and,

7           (e) repeating step (c) with the source signal from  
8 the another predetermined one of the plurality of signal  
9 channels substituted for the predetermined one of the plu-  
10 rality of channels.

1           58. A method of identifying which of first and  
2 second signal sources is supplying a program signal to a  
3 monitored receiver, wherein the first and second signal  
4 sources and the monitored receiver are located in a house-  
5 hold, and wherein the method comprises:

6           (a) comparing a sync signal from an output of one  
7 of the first and second signal sources to a sync signal from  
8 an output of the monitored receiver;

9           (b) if the sync signal from an output of one of  
10 the first and second signal sources matches the sync signal  
1 from an output of the monitored receiver, extracting a

12 reference program signature representative of the output of  
13 the monitored receiver and a signature representative of the  
14 output of the one of the first and second signal sources;

15 (c) identifying which of the first and second  
16 signal sources is a source of the program signal if the  
17 reference program signature and the signature representative  
18 of the output of the one of the first and second signal  
19 sources match; and

20 (d) if the sync signal from an output of the one  
21 of the first and second signal sources does not match the  
22 sync signal from an output of the monitored receiver, com-  
23 paring a sync signal from an output of another of the first  
24 and second signal sources to a sync signal from an output of  
25 the monitored receiver and repeating steps (b) and (c) as  
26 necessary.